

IFW
Brian D. Ogonowsky
Carmen C. Cook
David C. Hsia
Rachel V. Leiterman

January 28, 2005

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Re: Applicant(s): Jonathan J. Wierer, Jr., Michael R. Krames, John E. Epler
Assignee: Lumileds Lighting, U.S., LLC
Title: Photonic Crystal Light Emitting Device
Serial No.: 10/804,810
Examiner: Not yet known Filed: March 19, 2004
Docket No.: LUM-03-05-01 Group Art Unit: 2879

Dear Sir:

Transmitted herewith are the following documents in the above-identified application:

- (1) Return Receipt Postcard;
- (2) This Transmittal Letter (1 page);
- (3) Information Disclosure Statement (1 page);
- (4) Forms PTO/SB/08A and PTO/SB/08B (3 pages);
- (5) Seventeen (17) cited references;
- (6) Copies of the cited US Patent documents are not enclosed as the requirement under 37 CFR 1.98 (a)(2)(i) is waived.

- ☒ No additional fee is required.
☐ The fee has been calculated as shown below:

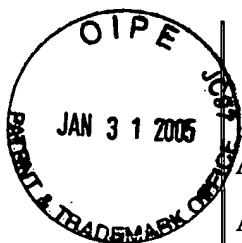
<input checked="" type="checkbox"/> Conditional Petition for Extension of Time: If an extension of time is required for timely filing of the enclosed document(s) after all papers filed with this transmittal have been considered, an extension of time is hereby requested.	
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 502226.	
Total: \$	0.00

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner For Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

R. Leiterman 1/28/05
Attorney for Applicant(s) Date

Respectfully submitted,

R. Leiterman
Rachel V. Leiterman
Attorney for Applicant(s)
Reg. No. 46,868



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Jonathan J. Wierer, Jr., Michael R. Krames, John E. Epler
Assignee: Lumileds Lighting U.S., LLC
Title: Photonic Crystal Light Emitting Device
Serial No.: 10/804,810 Filing Date: March 19, 2004
Examiner: Not yet known Group Art Unit: 2879
Docket No.: LUM-03-05-01

San Jose, California
January 28, 2005

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR § 1.97(b)**

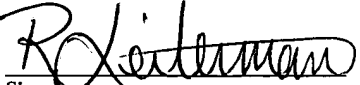
Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the documents listed on the accompanying forms PTO/SB/08A and PTO/SB/08B are called to the attention of the Examiner for the above patent application. A copy of the cited patent application is enclosed. Copies of the cited US Patent documents are not enclosed as the requirement under 37 CFR 1.98 (a)(2)(i) is waived.

Citation of these documents shall not be construed as:

1. an admission that the documents are necessarily prior art with respect to the instant invention;
2. a representation that a search has been made; or
3. an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.


Signature Date 1/28/05

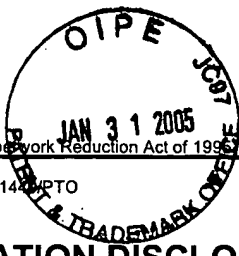
Respectfully submitted,



Rachel V. Leiteman
Attorney for Applicant(s)
Reg. No. 46,868

PATENT LAW
GROUP LLP
2635 N. FIRST ST.
SUITE 223
SAN JOSE, CA 95134
(408) 382-0480
FAX (408) 382-0481





PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449 PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Complete if Known

Application Number	10/804,810
Filing Date	March 19, 2004
First Named Inventor	Jonathan J. Wierer Jr.
Art Unit	2879
Examiner Name	Not yet known
Attorney Docket Number	LUM-03-05-01

Sheet 2 of 3

NON PATENT LITERATURE DOCUMENTS

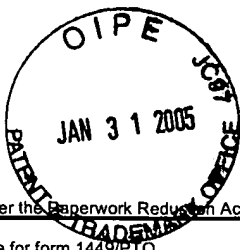
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		J.J. WIERER et al., "InGaN/GaN quantum-well heterostructure light-emitting diodes employing photonic crystal structures," Applied Physics Letters, Vol. 84, No. 19, May 10, 2004, pp. 3885-3887.	
		US Patent Application Serial No. 10/804,810, filed March 19, 2004 entitled "Photonic Crystal Light Emitting Device," 28 pages.	
		LEE et al., "Modified spontaneous emission from a two-dimensional photonic bandgap crystal slab," J. Opt. Soc. Am. B, Vol. 17, No. 8, August 2000, pp. 1438-1442.	
		BORODITSKY et al., "Surface recombination measurements on III-V candidate materials for nanostructure light-emitting diodes," Journal of Applied Physics, Vol. 87, No. 7, April 1, 2000, pp. 3497-3504.	
		BORODITSKY et al., "Light extraction from optically pumped light-emitting diode by thin-slab photonic crystals," Applied Physics Letters, Vol. 75, No. 8, August 23, 1999, pp. 1036-1038.	
		WINDISCH et al., "Light-emitting diodes with 31% external quantum efficiency by outcoupling of lateral waveguide modes," Applied Physics Letters, Vol. 74, NO. 16, April 19, 1999, pp. 2256-2258.	
		XU et al., "Finite-difference time-domain calculation of spontaneous emission lifetime in a microcavity," J. Opt. Soc. Am. B, Vol. 16, No. 3, March, 1999, pp. 465-474.	
		HWANG et al., "Spontaneous emission rate of an electric dipole in a general microcavity," Physical Review B, Vol. 60, No. 7, August 15, 1999, pp. 4688-4695.	
		FAN et al., "High Extraction Efficiency of Spontaneous Emission from Slabs of Photonic Crystals," Physical Review Letters, Vol. 78, No. 17, April 28, 1997, pp. 3294-3297.	
		Vuckovic et al., "Surface Plasmon Enhanced Light Emitting Diode," Journal of Quantum Electronics, Vol. 36, 2000, pp. 1-13.	

Examiner Signature	Date Considered
-----------------------	--------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

3

of

3

Complete if Known

Application Number 10/804,810

Filing Date March 19, 2004

First Named Inventor Jonathan J. Wierer Jr.

Art Unit 2879

Examiner Name Not yet known

Attorney Docket Number LUM-03-05-01

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Tredicucci et al., "Single-mode surface-plasmon laser," Applied Physics Letters, Vol. 76, No. 16, April 17, 2000, pp. 2164-2166.	
		Imada et al., "Coherent two-dimensional lasing action in surface-emitting laser with triangular-lattice photonic crystal structure," Applied Physics Letters, Vol. 75, No. 3, July 19, 1999, pp. 316-318.	
		Pottage et al., "Vertical-cavity surface-emitting resonances in photonic crystal films," J. Opt. Soc. Am. A, Vol. 18, No. 2, February 2001, pp. 442-447.	
		TIWARI, S., "Compound Semiconductor Device Physics," Academic Press, Inc., San Diego, CA, 1992, pp. 182-186.	
		G.B. STRINGFELLOW and M. GEORGE CRAWFORD, eds., "High Brightness Light Emitting Diodes," Academic Press, Inc., 1997, Chapter 5, "AlGaInP Light-Emitting Diodes," by F.A. KISH and R.M. FLETCHER, pp. 149-170.	
		US Patent Application Serial No. 10/691,026, filed October 21, 2003, entitled "Photonic Crystal Light Emitting Device," 30 pages.	

Examiner
Signature

Date

Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.